On FURTHER TRACES of *MEIOLANIA* in N. S. WALES.

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In 1889 I described* the first, and so far the only remains of this remarkable genus discovered in N. S. Wales, from the Canadian Lead, Gulgong, The fossils consisted of a small horn-core, greater part of a caudal vertebra, and two annular segments of the tail-sheath. Irrespective of the interest attached to the extended geographical distribution, lies the fact of the much more important geological range, perhaps even indicating a distinct species of the animal.

Evidence is now to hand, in the form of two horn-cores, of the existence of *Meiolania* in the superficial deposits near Coolah. The specimens form part of a small collection, consisting of bones of *Diprotodon*, *Phascolonus*, *Procoptodon*, &c., lately presented by Mr. J. McMaster, of Coolah. The conical processes almost rival in size those of the original *Meiolania Owenii*, Smith-Woodw. Mr. McMaster states that the fossils were found in the new channel of the Oaky Creek, branch of the main Weetalabah Creek, and in another branch known as Binnia Creek. The Weetalabah flows into the Castlereagh River, in the Bligh District, County Napier, about twenty-two miles north-west of Coolah.

The conical processes, in their present state of preservation, when placed on their broad bases, are more or less oblique—one more so than the other—thick bosses, graduating to moderately sharp apices, with an indefinitely quadrate rather than a strictly trihedral section. The peripheral or basal outline is imperfect.

In the smaller of the two horn cores, or conical processes, the longest basal diameter, *i.e.*, in the direction of the obliquity, is four inches; the greatest transverse breadth at right angles to the former is three inches; the height, taken vertically from the base to the apex, is fully three inches; whilst the length of the longest, or anterio-apical ridge (for it seems that in the tail-sheath of *Meiolania Owenii*, figured by Owen,† the longest ridge of the conical processes is always anterior), is three and a half inches.

* Records Geol. Survey N.S. Wales, 1889, I., pt. 3, p. 149.

† Phil. Trans., clxxii., t. 65.

Assuming this to be correct, one of the faces of the trihedral process, the dorsal, is flattened, or in the slightest degree convex; the under, or ventro-lateral, being faintly concave, and the posterior flattened and to some extent truncate. The apex is sharp, acuter than any of the processes figured by Sir R. Owen.* but less generally cornute than the supra-temporal cores *b* of the head.†

The second specimen only differs materially from the first in the antero-apical line losing much of its ridge-like character, and becoming obtusely rounded. Owing to the more extensive preservation of this part of the process, and the disintegration of the posterior lower portion, this horn-core presents the appearance of a greater obliquity than the other. The length of the antero-apical obtuse ridges is four inches; the antero-posterior diameter is four and a half inches; the transverse diameter three inches; and the height two and three-quarter inches. The lateral and posterior faces are flattened. The surface of both cores is pitted and veined by neuro-vascular markings.

If, in the first place, it be admitted that these are osseous cores for the support of dermal appendages, their interpretation does not seem surrounded with much difficulty. We are not acquainted with any Australian extinct animal, other than *Meiolania*, possessing such exoskeletal outgrowths: and as we know only the skull, part of the tail-sheath, and a few individual bones of this genus, it is but logical to compare these bony processes with those of either one or other of the former.

The horn-cores of the skull in *Meiolania* are either depressed mammillary (the supra-parietal and other smaller pairs), or acutely conical and cornute (the supra-temporal pair). Those of the tail-sheath, on the other hand, arranged in four parallel rows, two dorsal and two lateral, are "massive conical processes, like the horn-cores of the skull, but of larger size, being broader and thicker in proportion to their length, and rather more robust at the apex;"‡ the upper or dorsal pair being the largest and longest. The appearance of our fossils would indicate that they are from the rings of a tail-sheath, although on comparison with a good plaster reproduction of *M. Owenii*, they are seen to be more strictly trihedral, and their apices more regularly conical and sharper than in the former. The difference in shape may perhaps be more apparent than real, and arise in a great measure from their detached condition and imperfect peripheries; although at present their bases are wider in proportion to the height than in

* Phil. Trans., clxxi., t. 37; *Ibid*, clxxii, t. 65.

† Phil. Trans., clxxi., t. 37, f. 1, *b'*

‡ Phil. Trans., clxxii., p. 547.

M. Owenii, and the angle of inclination they would probably form, with the median line of the tail, is different. So far the conviction of the Writer is that they are horn-cores of a *Meiolania*, probably detached from a tail-sheath and possibly from a species differing from those described.

The late Sir R. Owen united in his description of the tail-sheath of *Meiolania Owenii*, the two rings and cap* with a detached ring.† He remarked‡ "The anterior ring . . . . may have come from a more advanced part of the tail, but the peripheral border of the hinder aperture . . . . fits that of the front aperture of the foremost of the coalesced group." Before me are excellent plaster reproductions of these fossils, and with the highest possible respect for the weighty opinion of the late celebrated Author, it appears to me that this opinion has been too hastily formed. Judging from the casts in question, made I believe, at the Natural History Museum, London, portions between the two parts must be missing, for the union is anything but a happy one. The conical processes on the detached ring are much smaller than the anterior pair on the coalesced portion of the tail-sheath, the curvature of the processes is unlike, and to some extent the angle they form with the median line of the tail is different. Now the assumption naturally would be that the more anterior in position, the larger the processes; and for the reasons cited I am of opinion that the two portions appertain to separate individuals. One other point may be mentioned in support of this. In the tail-sheath of coalesced processes the lateral pair almost pass insensibly below into the ventral surface, but in the detached ring there is a considerable interval of almost vertical walls between the preserved lateral process and the ventral surface.

We look forward to the day when, between the various National Collections, it will be possible to put together a tolerably perfect skeleton of this curious animal.

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* Phil. Trans., clxxii., t. 65, f. 1–3 *(pars.)*

† Phil. Trans., clxxii., t. 65, f. 4.

‡ Phil. Trans., clxxii., p. 547.